

### Abstract

An electrochemical biosensor formed by screen printing and method of fabricating such biosensor is disclosed in the present invention. The biosensor can quickly absorb a sample to be measured therein, effectively control volume of the sample fed and "fill-and-position" the sample therein. The biosensor includes an electrode layer (electrode area) comprising two or three electrodes, which are a working electrode, a reference electrode and an auxiliary electrode (tri-electrode) on an insulating substrate. An active reaction layer containing reactant, reaction catalyst, mediator, wetting agent and surfactant is spread on the surface of the electrode layer. A sample inflow area is formed above the electrode area by adding an upper cover on top of a middle insulating layer with a U-shaped opening formed therein. Sample solution with a minute amount about 0.8 to 1  $\mu$ l can be rapidly introduced into the electrode area and the active reaction layer via the inflow area by siphon or capillary, where the ingredient of the sample can be analysed by measuring reaction between the sample, reaction catalyst and mediator in the reaction layer using electrochemical potentiometric or amperometric method. An upwardly extended closed space formed within the upper cover above the electrode area adjacent to the front of conductive wires can be effectively used to control sample volume and "fill-and-position" the sample.